


Women in the Mayo Clinic Department of Neurology in its early years

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ABSTRACT

The stories of early women physicians in the field of neurology are seldom discussed. Understanding the history behind women in neurology can inform our current practice and uncover the possible origins of gender disparities in academic neurology. Utilizing annual section/department reports and other primary sources, we describe the first women trainees and staff who broke gender barriers to train and work in the Mayo Clinic Department of Neurology. The department was founded in 1913 when Walter Shelden became its first consultant. It was not until the 1950s that a woman completed her neurology training and went on to practice neurology. Throughout the early years of the training program, there were no women on staff, as it was not until the 1970s when the first women were hired as consultants.

KEYWORDS History; neurology; women in medicine

In the United States, the role of women in medicine has seen significant changes since 1849 when Elizabeth Blackwell became the first woman in the country to obtain a medical degree.¹ At that time, it was felt that women in medicine should practice in “special branches” of medicine, namely caring for women and children.^{2,3} In 2019, a substantial milestone was reached when American medical schools achieved gender parity.⁴ In neurology, Dr. Sarah J. McNutt was the first woman to be inducted into the American Neurological Association in 1884, and since then an increasing number of women have entered the field of neurology.⁵ By 2018, women made up 45% of trainees in neurology;⁶ however, women made up only 31% of practicing neurologists in 2019.⁷

HISTORICAL PERSPECTIVE: MAYO CLINIC DEPARTMENT OF NEUROLOGY

Mayo Clinic was founded in the 1860s when William Worrall Mayo began practicing in Rochester, Minnesota. He was later joined by his physician sons, William J. and Charles H. Mayo. Dr. Walter Shelden became the first consultant in the Department of Neurology in 1913. Training programs began in 1915 with the start of The Mayo Foundation for Medical Education and Research (Mayo

Foundation), which was an educational link between Mayo Clinic and the University of Minnesota. These programs were called fellowships (instead of residencies),⁸ and neurology was not initially one of the available fellowships until 1919 when Dr. John (Jack) B. Doyle began his training.⁸

BARRIERS FACED BY EARLY TRAINEES

The stories of the first women to complete a portion of training in neurology at Mayo Clinic demonstrate some of the obstacles faced by women in neurology. Dr. Betty Clements was the first woman to train in neurology at Mayo Clinic and go on to work as a neurologist, completing her training in 1957. Prior to this, other women applied for and completed portions of training in neurology, but many of these women went on to practice psychiatry. Dr. Clements additionally was declined a position in internal medicine. In subsequent letters indicating her interest in neurology, her letter writers, including Dr. Alexander MacClean in Arizona, described her as “an exceptional girl.”⁹ One of her supporters to the department even acknowledged a gender bias by writing: “Ordinarily, I am not much of a booster for women in Medicine but I have come to know Dr. Clements as an Interne and Medical Resident.”⁹

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Figure 1. (a) Dr. Theodora Wheeler. (b) Dr. Mary Marshall. (c) Dr. Eleanor Botha. (d) Dr. Mary E. Giffin. (e) Dr. Hermance de Ramaix. (f) Dr. Betty Clements. (g) Dr. Frisca Yan-Go. (h) Dr. Barbara Westmoreland. By permission of the Mayo Foundation for Medical Education and Research. All rights reserved. Courtesy of the W. Bruce Fye Center for the History of Medicine, Mayo Clinic, Rochester, MN.

Spousal bias

The path of the first woman who had applied to complete training in neurology demonstrated the bias toward spouses of physicians at Mayo Clinic. Dr. Theodora Wheeler (Figure 1a) was the first woman to apply for neurology training in 1921, two years after the start of the neurology training program. She received her medical degree from Johns Hopkins University in 1916 and married a fellow classmate, Dr. William Parker Finney, Jr., the same year. He began his medicine residency at Mayo Clinic in 1919.¹⁰ Prior to applying for a fellowship in neurology, she was appointed to a part-time volunteer fellowship in embryology at Mayo Clinic from September 10, 1920, to October 1, 1921.¹¹ When she requested to start training as a fellow in neurology with plans to transfer to an area of public health, the Mayo Foundation Medical Graduate Committee rejected her request, as it was not felt that neurology was a proper minor for public health.¹² Her application to complete a fellowship in medicine was also rejected later that year. According to the committee meeting minutes from July 12, 1921, “In line with Dr. Sheldon’s recommendation and after consultation with Drs. W.J. and C.H. Mayo, it was agreed that Dr. Wheeler should not be formally appointed and that no stipend should be recommended for her” (p. 1).¹³ Dr. Wheeler’s husband started on staff at Mayo Clinic in 1922.

At the time of her denial to complete training at Mayo Clinic, there was a policy that discouraged hiring the spouse

of a staff member.^{14,15} This policy negatively affected the hiring of women, likely including Dr. Wheeler. This demonstrates the impact that policies can have on promoting gender disparities. While this policy was ultimately rescinded in 1969,¹⁶ institutional policies that support women physicians remain crucial to retaining women physicians.¹⁷

Despite not being appointed for a training position, Dr. Wheeler volunteered her time at the clinic, working with patients with epilepsy. Mayo neurologist Fred Moersch commented:

Dr. Wheeler was an enthusiastic worker. For a time she aided us in our work of psychologic testing. One of her main interests was the study of epilepsy. At her own expense she examined many of our patients having epilepsy. She also carried on her studies in convulsive disorders at the Rochester State Hospital and at the state institution at Cambridge, Minnesota, which was for patients with epilepsy. At times it was difficult for us to see the wisdom of her investigations but we never doubted her enthusiasm for her work. It was during these years that the Clinic was reluctant to have a Doctor and his wife on the Staff at the same time (p. 93).¹⁴

Dr. Wheeler’s contributions to the medical field included an article about her own pregnancy entitled “The Basal Metabolism Before, During, and After Pregnancy” published in the *Journal of Biology and Chemistry* in 1924 and publications about spina bifida and epilepsy.^{18–20} She left Mayo Clinic in 1932 and worked in a private practice in psychiatry.¹⁰ She had five children, three daughters and two sons

(1918, 1920, 1922, 1923, and 1927).¹⁰ Dr. Wheeler later relocated to Lake Geneva, Wisconsin, where she passed away on May 27, 1973.¹⁰

Bias toward practicing psychiatry

The next three women to complete a portion of training in neurology, Drs. Mary Marshall, Eleanor Botha, and Mary Giffin, all went on to ultimately practice psychiatry as opposed to neurology. While the individual circumstances for their decisions to pursue careers in psychiatry as opposed to neurology are unknown, psychiatry is a field with a larger representation by women than neurology.⁷ During the 19th century, women physicians were needed to care for female patients in psychiatric hospitals, known as asylums at the time, which may potentially explain a larger representation by women in psychiatry earlier than in other fields.²¹ In the early years of the training program at Mayo Clinic, neurology and psychiatry were combined and denoted as neuropsychiatry. Neurology was not separated into its own subspecialty until 1946 with the hiring of psychiatrist Dr. Frank Braceland.⁸ Physical separation of these practices did not occur until 1954.

Dr. Mary Marshall (*Figure 1b*), a graduate of the University of Toronto, was the first woman to train in neuropsychiatry when she started in 1937.²² Throughout her training, her major was always psychiatry, and she practiced psychiatry after finishing her training.²² She married Dr. Allan A. Bailey on September 25, 1937, who also completed his neuropsychiatry training at Mayo Clinic.²² Although Dr. Marshall initially planned to complete her training on September 30, 1940, she discontinued her service at Mayo Clinic on August 31, 1939, with “health” noted as the reason.²² This was potentially related to a pregnancy, as her first child was born on February 24, 1940.²³

Dr. Marshall came back to complete her training at Mayo Clinic, working part-time from January 1, 1952, to April 1, 1954, after practicing medicine in Ottawa during World War II.²² During this time, she was listed as being in psychiatry and not neurology.²² Her husband was the head of a section of neurology while at Mayo Clinic.²⁴ They returned to Canada in 1954, as her husband was invited to be a neurology faculty member in the new Clinical School at the University of Saskatchewan College of Medicine.²⁴ She entered private practice as a psychiatrist in Saskatoon, Saskatchewan, and worked in psychiatry until her retirement in 1979.²² She passed away in 1999.²²

Dr. Eleanor Botha (*Figure 1c*), a graduate of the University of Minnesota Medical School, started her training in neuropsychiatry in 1943 at Mayo Clinic.²⁵ She was married to Dr. Thomas James Kennedy, who began training in radiology at Mayo Clinic in 1943.²⁵ During World War II, he was stationed at Fitzsimons Army Hospital in Aurora, Colorado. There was a break in her training from September 1943 to July 1946, which was likely related to the war and her husband’s assignment, as she worked in psychiatry at

Colorado Psychopathic Hospital during this time.²⁵ She returned to Mayo Clinic and worked as a first assistant in neurology in 1947, prior to completing her training in 1948.²⁵ Although her major was always neurology while training at Mayo Clinic, she too went on to practice psychiatry, working as a staff psychiatrist at the University of Denver.²⁵

The next woman to complete a portion of training in neurology at Mayo Clinic was Dr. Mary E. Giffin (*Figure 1d*). She was originally from Rochester, Minnesota, and the daughter of Dr. Herbert Z. Giffin.²⁶ She graduated from Johns Hopkins in 1943 and started her training at Mayo Clinic as a medicine resident in 1944 prior to transferring to the neuropsychiatry residency in 1945.²⁶ During this time, it was common for neurology residents to be recruited from the medicine residency.⁸ Dr. Giffin’s major was always listed as neurology.²⁷ In 1947, she completed a master’s thesis on Werdnig-Hoffmann muscular atrophy and amyotonia congenita of Oppenheim, leading to her receiving a master of science degree in neurology and psychiatry from the University of Minnesota.²⁷ She completed her neuropsychiatry residency in 1948;²⁷ however, she ultimately went on to practice psychiatry, working as a house officer in psychiatry at Johns Hopkins from 1948 to 1949 prior to returning to Mayo Clinic as a consultant in psychiatry.²⁶ She became board certified in psychiatry in 1951 and neurology in 1952.²⁶ She left Mayo Clinic in 1958 to become medical director of North Shore Mental Health Clinic in Highland Park, Illinois.²⁶ She had multiple publications in psychiatry throughout her career and passed away in 2002.²⁶

Early termination of training

Dr. Hermance de Ramaix (*Figure 1e*) was born in France and obtained her medical degree from University of Louvain in Belgium. She was a fellow in neurology at Mayo Clinic from October 1948 to April 1950, and her major was listed as neurology *and* psychiatry.²⁸ Prior to this, she worked at the Sister Kenny Foundation in Minneapolis, Minnesota, to gain experience with poliomyelitis, with plans to return to Belgium to start a similar treatment center.²⁸ Her appointment at Mayo Clinic ended prematurely on April 1, 1950, after 17.5 months of training, and she married Dr. Etienne Legait on August 5, 1950.²⁸ He became professeur d’histologie et d’embryologie at Hôpitaux de Nancy in France.²⁹ They did lab research together and had four sons.²⁹ The details of the reasons behind her abrupt termination of training are unknown, but letters that supported her application suggested that she had planned on training for only a brief period of time.²⁸ The timing suggests the possibility that it may have had to do with her relationship with Legait. A July 1950 letter from Mayo Foundation registrar Isabel Farr stated that “we are very glad to know you are anticipating continuing your scientific career after your marriage.”²⁸

FIRST WOMAN TRAINED TO BECOME A NEUROLOGIST

The first woman neurology resident at Mayo Clinic to devote herself to the practice of neurology was Dr. Betty Clements (*Figure 1f*), who completed her training from October 1954 through December 1957. She was born on April 14, 1918, and grew up in Elmwood, Nebraska.⁹ She completed her undergraduate training at the University of Nebraska in education and subsequently taught girls' physical education.⁹ During this time, she obtained her pilot's license.⁹

Clements then became a member of the Women Airforce Service Pilots program in 1943, where she flew as part of the Manhattan Project for the atomic bomb in the United States.⁹ She subsequently served in the Philippines as a Red Cross hospital worker following World War II.⁹ After the war, she finished medical school at the University of Nebraska and did her internship in Phoenix, Arizona.⁹ In a letter with her application to Mayo Clinic, Dr. Alexander MacClean's words to support Dr. Clements mention some of the possible obstacles faced by the earlier women trainees. He described the need for neurologists in Arizona and "a woman neurologist would seem to fill the bill ideally. She isn't going to get married and support a family and be driven by financial necessity to practice bootleg psychiatry, and she will come back here to fill a very definite need."⁹

Dr. Clements was a superior resident, known for her meticulous work, excellent fund of knowledge, and great bedside manner.⁹ In 1958, she spent 3 months as a clinical clerk at the National Hospital for Nervous Diseases, Queen Square, London.⁹ She returned to practice neurology in Phoenix in 1958, where she was "the first full-time Neurologist in the Southwest between Dallas and Los Angeles and between Denver and Mexico City" (p. 723).³⁰ Clements was one of the founders of Barrow Neurological Institute.³⁰ She died of carcinomatosis at age 47 in 1965.⁹ She was awarded the Congressional Gold Medal in 2010 and was inducted into the Nebraska Aviation Hall of Fame in 2019.^{31,32}

FIRST NEUROLOGY CONSULTANTS

Few women were on staff at Mayo Clinic throughout the early and mid 1900s. In fact, no women were hired on staff between 1935 and 1948.^{33,34} With the start of the Mayo Medical School in 1972, there were federal mandates leading to inclusion of women, which ultimately led to the hiring of more women on staff.³³ In addition, the prior policy that discouraged hiring the spouse of a staff member was rescinded in 1969, which also impacted the hiring of women.^{15,16} The first two women on staff in the Department of Neurology were Dr. Frisca Yan-Go and Dr. Barbara Westmoreland in the early 1970s.

Dr. Yan-Go (*Figure 1g*) joined the department in 1972.^{35,36} She was born in the Philippines in 1939 and completed her medical degree at University of Santo Tomas. She then finished an internship at Abbott-Northwestern Hospital before coming to Mayo Clinic for neurology residency from 1965 to 1969.³⁶ She pursued further training in pediatric

neurology at the Hospital for Sick Children in Toronto from 1969 to 1971.³⁶ Dr. Yan-Go became certified by the American Board of Psychiatry and Neurology with a Special Competence in Child Neurology in the fall of 1973. In 1972, she was appointed to a part-time position as a special consultant in neurology and pediatric neurology in the Department of Neurology at Mayo Clinic.^{35,37} She also worked part-time at the Rochester State Hospital.^{36,37} Her husband, Dr. Vay Liang Go, also completed training at Mayo Clinic in internal medicine and gastroenterology and then worked as a Mayo Clinic consultant.

Dr. Yan-Go resigned from Mayo Clinic in 1988 and went on to work at the University of California, Los Angeles (UCLA), where she became the medical director of the Sleep Disorders Center and the first woman program director of UCLA Neurology.^{36,38} A lectureship in sleep medicine was named after her in 2016.³⁹ Together with her husband, she had three children.³⁶ Dr. Yan-Go passed away in 2021.

Dr. Barbara Westmoreland (*Figure 1h*) was the second woman to become a consultant in the Department of Neurology when she joined in 1973.^{35,37} She was born in 1940 and completed medical school at the University of Virginia in 1965.⁴⁰ She finished her internship at Vanderbilt University Hospital, followed by a neurology residency at the University of Virginia.⁴⁰ She came to Mayo Clinic in 1970 for further training in electroencephalography.⁴⁰ From 1971 to 1973, she was in a temporary capacity as an associate consultant, prior to her full appointment in 1973.^{40,41} She made significant contributions to the electroencephalography section shortly after her hiring.⁴⁰ In 1974, she served as teaching faculty for the first-year neurosciences curriculum of Mayo Medical School and was later chairperson of that course.^{40,42,43} She was noted to be a superb educator with superior abilities in clinical electroencephalography, where her expertise was sought after in many cases.⁴² In 1976, she received the Teacher of the Year Award in Neurology.⁴⁰ She contributed multiple publications to the literature and was promoted to professor of neurology in 1985.⁴⁰ She mentored numerous trainees throughout her career and retired in 2010.

CONCLUSION

It was not until 1957 that a woman completed training at Mayo Clinic and went on to practice neurology, but in the 38 years prior, other women applied and completed a portion of training in neurology. The stories of these trainees highlight some of the obstacles faced by women in neurology: the first woman who applied went unpaid, marriage or the birth of a child led to breaks from training or leaving training, and many of the early trainees pursued a career in psychiatry. Throughout the time of training for these women, there were no women on staff, as it was not until the 1970s when Dr. Yan-Go and Dr. Westmoreland were hired. Their hiring came after a policy discouraging the hiring of a spouse of a faculty member was rescinded and after the start of the Mayo Medical School, which led to federal

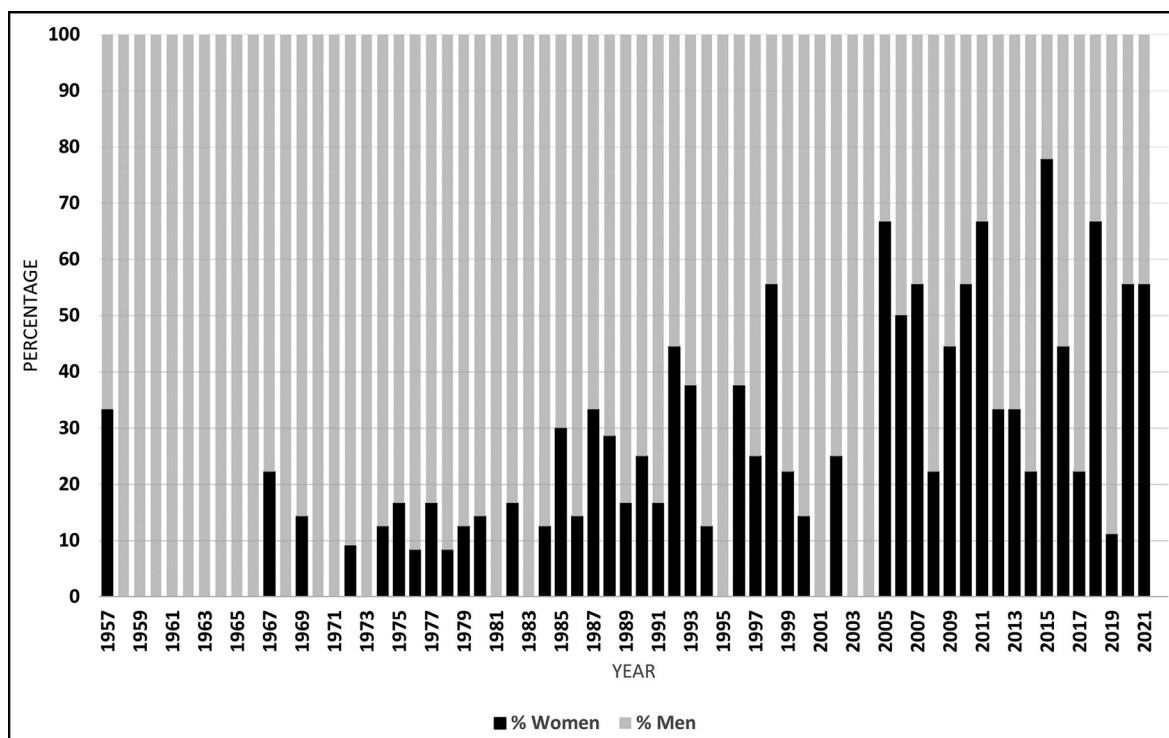


Figure 2. The percentages of graduating men and women residents in the Mayo Clinic adult neurology residency in Rochester, Minnesota, by residency graduating year, 1957 to 2021. Women have been well represented in the residency over the past several years.⁴⁴

mandates that supported the hiring of women, demonstrating the effects policies can have on gender disparities. Both Dr. Yan-Go and Dr. Westmoreland made significant contributions to their fields during their careers and paved a path for further women to join the Mayo Clinic Department of Neurology.

The neurology residency at Mayo Clinic now has adequate representation by women (*Figure 2*),⁴⁴ while women currently encompass 29% of consultants in the Neurology Department in Rochester in 2021, similar to national averages in academic neurology centers.⁴⁵ The increased representation of women in the residency is likely a result of many factors, including an increasing number of women pursuing medicine and neurology specifically, increased mentorship opportunities, and recognition and initiatives to support fostering diversity and inclusion. The difference in the percentage of women in residency as compared to on staff reflects the prior underrepresentation of women in neurology training in addition to the attrition of women in academic medicine, in part due to the obstacles women continue to encounter.⁴⁶

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